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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/845,897	04/28/97	IMAM M	77.897

IM62/0419

ASSOCIATE COUNSEL PATENTS
NAVAL RESEARCH LABORATORY
CODE 3008 2
WASHINGTON DC 20375-5000

EXAMINER	
COPENHEAVER, B	
ART UNIT	**PAPER NUMBER**
1771	16

DATE MAILED: 04/19/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/845,897	Imam et al.
Examiner	**Group Art Unit**
Blaine R. Copenheaver	1771

☒ Responsive to communication(s) filed on *Nov 22, 1999* .

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-22* is/are pending in the application.

Of the above, claim(s) *5, 6, 8-10, and 12-16* is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-4, 7, 11, and 17-22* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

1. Claims 5, 6, 8-10, and 12-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected specie(s), the requirement having been traversed in Paper No. 4.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 7, 11, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsang et al. (US 4,605,595) as set forth in Paper #14. Tsang discloses that suitable binders include epoxy resins and phenolic resins. Tsang anticipated the claimed subject matter.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 7, 19, and 22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reitz (US 4,759,000) as set forth in Paper #14. Reitz discloses the claimed invention expect for literally disclosing that the metal foam is an open celled foam. However, it appears that the foam must inherently be an open cell foam because the pores of the foam are filled with the impregnate (column 9, line 67 to column 10,

line 11). It is further noted that Reitz discloses a harden silicone rubber, which reads on the applicants' definition of a non-elastomeric polymeric matrix (See claim 3 and page 9 of specification). Reitz either anticipated or strongly suggested the claimed subject matter.

6. Claims 17, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Tsang or Reitz as set forth in Paper #14. With regard to claim 17 and 18, none of Fisher, Tsang nor Reitz specifically disclose the pore size relationship of the pores of the metal foam. However, it is well known in the art that the pore size distribution directly effects the properties of the foam. It would have been within the level of ordinary skill in the art to have used a uniform pore sized foam, motivated by the desire to obtain a foam having substantially uniform properties along the entire length of the foam. Likewise, it would have been obvious to the skilled artisan to have used a gradation pore size foam, motivated by the desire to obtain a foam having differing properties along the length of the foam. While a laminate containing a plurality of impregnated metal foam sheets are not literally disclosed in Fisher, Tsang or Reitz, the skilled artisan would have found it obvious to have formed a laminate containing a plurality of like impregnated metal foam sheets, motivated by the desire to further enhance of the properties exhibited by the use of one impregnated metal foam sheet. With regard to claim 21, none of Fisher, Tsang nor Reitz specifically disclose the thickness of the metal foam being no less than 3 times the average diameter of the cells. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized either the thickness of the metal foam or average cell diameter of the metal foam, since it has been held that where the general conditions of a claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. In the present case, it would have been obvious to the skilled artisan to have prepared a thicker metal foam, motivated by the desire to enhance the tensile strength and barrier properties of the metal foam. And, it would have been obvious to the skilled artisan to have prepared a metal foam having a smaller average cell diameter, motivated by the desire to have optimized the compressive, flexural, shear and tensile strength of the resulting impregnated foam.

7. Applicant's arguments filed on November 22, 1999 have been fully considered but they are not persuasive. The 35 USC 112, second paragraph rejection has been overcome by the present amendment. The art rejections over Fischer et al have been overcome by the present arguments.

8. The argument that the impregnate of Tsang does not "fill the cells" because the impregnate contains filler is not persuasive for 2 reasons. First, the composition of Tsang, which includes both resin and filler, fully fills the cells of the metal foam. The fact that the composition contains fillers does not preclude the fact that the voids are filled with the impregnate. Second, applicants' claims read on embodiments where the impregnate contains fillers (See specification, page 8, lines 2 and 3). The argument that Reitz does not disclose "a non-elastomeric polymeric matrix" is not persuasive for the following reason. As set forth in Paper #14 and repeated above, Reitz discloses a harden silicone rubber, which reads on the applicants' definition of a non-elastomeric polymeric matrix (See claim 3 and page 9 of specification).

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blaine R. Copenheaver whose telephone number is (703) 308-1261. The examiner can normally be reached on Tuesday-Friday from 6:30 AM-4:00 PM and on alternating Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Terrel H. Morris, can be reached at (703) 308-2414. The fax numbers for Technology Center 1700 are (703) 305-7718 and (703) 305-3601.

Blaine R. Copenheaver
Primary Examiner
Art Unit 1771

B. Copenheaver
April 16, 2000